



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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(54) Title: DISPOSABLE ABSORBENT ARTICLE		
(57) Abstract <p>Disposable absorbent article such as a diaper or a sanitary napkin, comprising an absorbent body (1) which is encased in an envelope which comprises two surface layers (2, 3) which are joined mutually around the absorbent body and of which layers one (3) is liquid impermeable and the other (2) is liquid permeable. The article is characterized in that a sheet (4) of elastic material having a contour which coincides with the contour of one end of the envelope is attached to this end of the envelope around its outer edge, the free edge of the sheet extending transversally across the article; and in that the sheet has an extension such that when the sheet is turned over from that side of the article which faces outwards when the article is in use to the opposite side thereof, the sheet will close off the article, so that only liquid-impermeable material faces outwardly. Thus, the article can be brought to a satisfactory hygienic package form, without requiring the assistance of auxiliary means, such as a box or plastic bag.</p> <div data-bbox="812 1123 1412 1879"> </div>		

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DISPOSABLE ABSORBENT ARTICLE

The present invention relates to a disposable absorbent article, such as a diaper or sanitary towel, comprising an absorbent body or pad which is encased in an envelope which comprises two surface layers which are joined mutually around the absorbent body and of which one layer is impermeable to liquid and the other is permeable to liquid.

Such articles are often difficult to dispose of after use, for instance when the used article is changed in a public toilet facility which lacks a receptacle for the disposal of the used article. It is normally forbidden to flush articles of this nature down the toilet basin of such facilities.

The object of the invention is to avoid this drawback and to provide a disposable absorbent article which can be formed easily into a hygienic and aesthetically pleasing package.

This object is achieved with an article having the characteristic features set forth in Claim 1. Because of the presence of the inventive sheet the article can always be folded into a carriable package, which avoids the necessity of having on one's person a separate receptacle, such as a box or plastic bag, in which such articles can be placed.

So that the invention will be more readily understood, two exemplifying embodiments of the invention will now be described with reference to the accompanying drawings, in which

Figure 1 illustrates a diaper according to the invention;

Figure 2 illustrates the diaper folded double for carrying purposes;

Figures 3 and 4 illustrate an incontinence protector according to the invention and show the protector in its in-use configuration; and

Figure 5 illustrates the protector of Figures 3 and 4 in its packaging configuration.

5 The diaper illustrated in Figure 1 comprises an absorbent body or pad 1, the contours of which are shown by dash lines in Figure 1 and by dotted lines in Figure 2, and an envelope or casing which embraces the absorbent body 1 and which comprises two surface layers 2, 3 joined mutually around the body. The surface layer 2 is intended to lie against the wearer's skin and is permeable to liquid, whereas the surface layer 3 is liquid impermeable.

15 The illustrated diaper further includes an elongated, narrow sheet 4 of flexible material, three side edges of which are joined to corresponding edges of the envelope 2, 3 at one end of the diaper, e.g. as by heat welding or gluing. In this way there is formed between the sheet 4 and the underlying part of the surface layer of the envelope a space which is intended to accommodate the other end of the diaper, so that the diaper
★ 20 can be held in a double-fold carriable state.

The carriable state or configuration of the diaper illustrated in Figure 1 is shown in Figure 2. As will be seen from this Figure, the liquid impermeable surface layer 3, which when the
25 diaper is in use faces outwards and therewith is not in contact with the wearer's skin, is turned outwardly so that when the diaper is folded into its carriable state the surface layer 2 is essentially shielded from external contact.

30 If it is desired to shield the whole of the inner surface of the diaper, i.e. the whole of the outer layer 2, from the surroundings, these parts of the envelope or casing which are located outwardly of the absorbent body and beneath the end which includes the sheet 4 can be folded in over the absorbent
35 body 1 prior to folding the diaper in two.

The presence of the sheet 4 thus enables single diapers to be carried in an hygienic and satisfactory manner.

When the diaper is to be used, the folded diaper can be unfolded to the state illustrated in Figure 1, whereafter the end of the diaper which includes the sheet 4 is pulled from the space located between envelope and sheet, in the same manner as a trousers pocket is pulled out from and tucked into a pair of trousers. The sheet 4 will thus be situated on the same side of the absorbent body as the outer layer 3, with the side which faces outwards in the illustrations of Figures 1 and 2 turned inwards, thereby exposing the liquid permeable layer 2 of the diaper. The joins between the sheet 4 and the envelope will preferably be located on the same side of the absorbent body 1 as the liquid-impermeable layer 3, so as to ensure that the inner surface of the diaper will be quite smooth.

If it is not possible simply to discard the diaper after use or if there are other reasons for not throwing away a used diaper in the location where a diaper is changed, the sheet 4 can be tucked back into the position shown in Figure 1, whereafter the diaper is folded to the state illustrated in Figure 2. Because the liquid impermeable layer 3 then faces outwards, a hygienically acceptable package is obtained, even in the case of used diapers.

It should be observed in this context that the sheet 4 simply constitutes an addition to conventional absorbent articles, such as diapers and sanitary towels, and that this addition is provided primarily for adult wearers, where the need for discretion when carrying or discarding a diaper or sanitary towels is quite paramount, although the aforesaid sheet is able to fulfill the needs of other circumstances, e.g. when changing a diaper outdoors. Thus, in the case of children's diapers it can be expedient for the sheet 4 to cover the liquid-impermeable layer 3 in the original starting position, so that the liquid-permeable layer 2 which is intended to lie against the wearer's skin is normally exposed. In order to convert such an article into package form, it is necessary first to bring the sheet 4 to the opposite side of the ab-

sorbent body prior to folding the article and then to tuck the opposite end of the article into the space defined between the sheet and envelope.

- 5 In the case of sanitary towels, the inventive sheet is conveniently provided with an adhesive layer which will hold the towel firmly to the wearer's panties. This adhesive layer can also assist in securing the end of a double-folded towel to the inner surface of such a sheet in its carrying position,
10 this inner surface being turned to face the wearer's panties when the sheet is turned over to expose the liquid-permeable surface layer of the towel.

- Naturally, the sheet 4 of the diaper construction illustrated
15 in Figures 1 and 2 can also be provided with an adhesive layer, so as to secure the tucked-in end of a double-folded diaper.

- Figures 3 and 5 illustrate a further embodiment of the invention in the form of an incontinence protector for men, the
20 elements of which are analogous to corresponding elements of the diaper illustrated in Figures 1 and 2 being identified by the same references.

- 25 This protector comprises a bag-like container which has an upwardly flared configuration, so that when the protector is not in use it has in cross-section the shape of an isosceles trapezoid with the short side downwards. The wall of the bag-like container is comprised of an absorbent core 1 of
30 fluffed pulp, which is enclosed by two surface layers 2, 3, i.e. a liquid impermeable plastics layer 3 which extends around the outer surface, and a liquid-permeable layer 2 of fibre-fabric which extends around the inner surface, these layers being joined to one another around the periphery of the
35 container. On that side of the bag-like protector which is intended to face towards the wearer in use, the wall 1, 2, 3 has formed therein an aperture 5 through which the wearer's penis and scrotum can be inserted into the protector, wherein

those wall parts of the bag-like protector which, in use, lie closest to the aperture 5 on respective sides thereof are held in position between the scrotum and stomach of the wearer.

5 In accordance with the invention, three edges of a substantially elongated-rectangular sheet 4 of flexible material are attached to the upper part of the protector on the outer surface thereof, on the part of the wall located opposite the aperture 5. The dimensions of this sheet 4 are such that the
10 sheet will extend in the lateral direction of the protector across half of its circumference, i.e. over the whole of the upper part of the isosceles trapezoid and such that in the vertical direction the sheet will extend beyond the aperture 5. The sheet 4 may be provided with an adhesive layer 6, 7, so
15 that the protector can be secured to the wearer's underpants. Prior to being used, the protector may be stored or kept in the form illustrated in Figure 5, with the sheet 4 turned over onto the apertured side of the protector. This will result in an hygienic and neat one-piece protector package.

20 Because all sides of the package are closed, the risk of unpleasant odours escaping from a used, discarded protector is minimum. When the sheet is provided with adhesive surfaces 6, 7, as with the Figures 4 and 5 embodiments, these surfaces can
25 be utilized to seal or close an incontinence protector in its packaged form, since the adhesive surfaces are then turned so as to enable them to be fastened to the plastic outer surface layer 3 of the protector. If the protector is intended for delivery in the form illustrated in Figure 5 with the adhesive
30 surfaces 6, 7 adhered to the outer plastic layer of the protector, the protector should preferably be treated with some form of release agent, so that the sheet 4 can be readily loosened and turned over and the protector made ready for use. Obviously, the adhesive surfaces may be covered with loose
35 paper or plastic strips treated with a release agent, which can be removed when the protector is to be used. Admittedly, when the adhesive surfaces are thus covered, they cannot be used to secure the delivery package. Nevertheless, the ad-

hesive surfaces can still be used to fasten the protector to the wearer's underpants and to secure the used protector in package form.

- 5 It will be understood that the illustrated embodiments of the inventive absorbent article can be modified in various respects, particularly with regard to the configuration and dimensions of the sheet 4. The scope of the invention is therefore defined only by the disclosures of the following
- 10 claims.

CLAIMS

1. A disposable absorbent article such as a diaper or a
sanitary napkin, comprising an absorbent body (1) which is
encased in an envelope which comprises two surface layers (2,
3) which are joined mutually around the absorbent body and of
5 which layers one (3) is liquid impermeable and the other (2)
is liquid permeable, characterized in that a sheet (4) of
flexible material having a contour which coincides with the
contour of one end of the envelope is attached to said end of
the envelope around its outer edge, the free edge of the sheet
10 extending transversally across the article; and in that the
sheet has an extension such that when the sheet is turned over
from that side of the article which faces outwards when the
article is in use to the opposite side thereof the sheet will
close off the article, so that essentially only liquid-
15 -impermeable material faces outwardly.

2. An article according to Claim 1, characterized in that an
adhesive layer (6, 7) is provided on that side of the sheet
(4) which faces inward when the sheet is turned to close-off
20 the article.

1/2

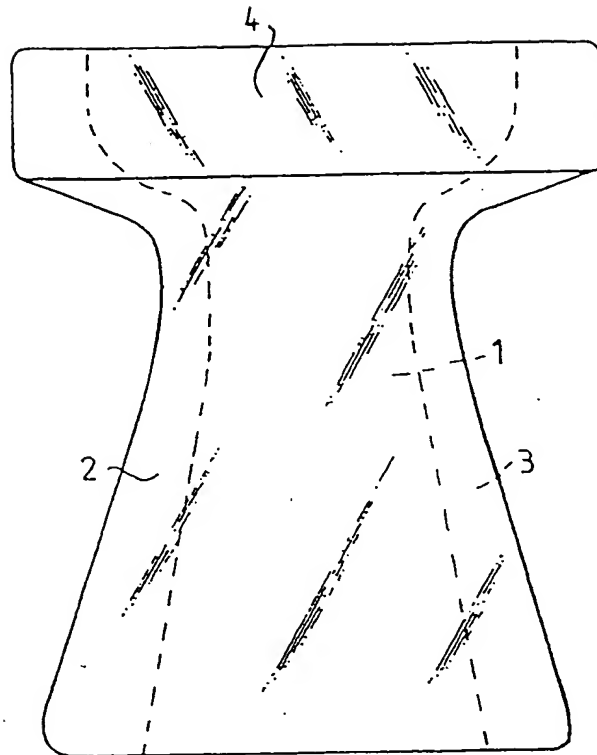


FIG.1

177. x 2 = 347.

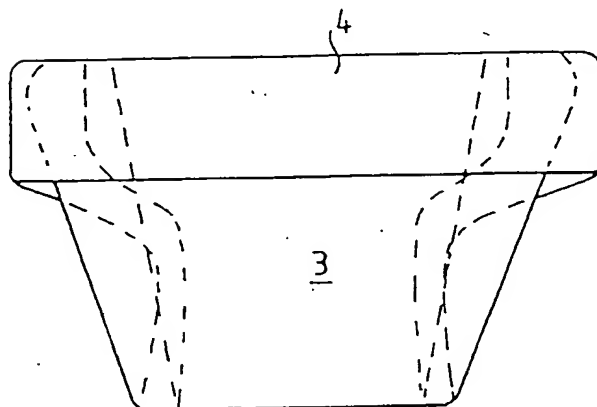


FIG. 2

2/2

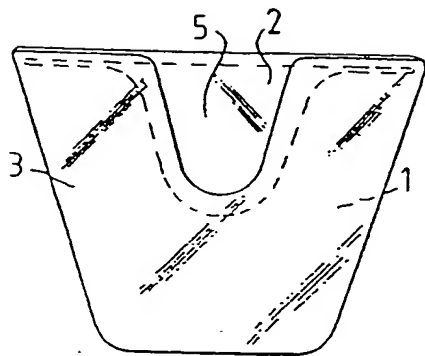


FIG. 3

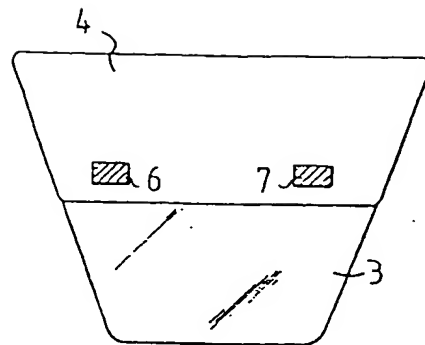


FIG. 4

50%

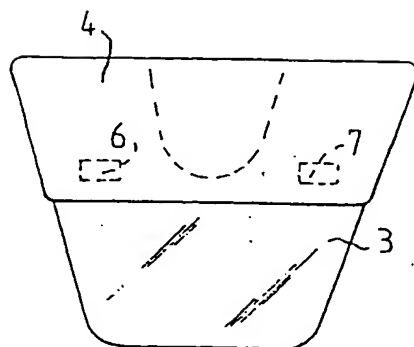


FIG. 5

INTERNATIONAL SEARCH REPORT

International Application No.

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all) * According to International Patent Classification (IPC) or to both National Classification and IPC 4 A 41 B 13/04, A 61 F 13/16											
II. FIELDS SEARCHED <div style="text-align: center; border-top: 1px solid black; border-bottom: 1px solid black;">Minimum Documentation Searched 7</div> <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 25%; border-bottom: 1px solid black;">Classification System</th> <th style="width: 75%; border-bottom: 1px solid black;">Classification Symbols</th> </tr> <tr> <td style="border-right: 1px solid black; padding: 5px;">IPC 4 US C1</td> <td style="padding: 5px;">A 41 B 13/02, A 61 F 13/16 128:284, 287, 290; 604:358-385</td> </tr> </table> <div style="text-align: center; border-top: 1px solid black; border-bottom: 1px solid black;">Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched *</div> <p style="padding: 10px 0 0 20px;">SE, NO, DK, FI classes as above</p>			Classification System	Classification Symbols	IPC 4 US C1	A 41 B 13/02, A 61 F 13/16 128:284, 287, 290; 604:358-385					
Classification System	Classification Symbols										
IPC 4 US C1	A 41 B 13/02, A 61 F 13/16 128:284, 287, 290; 604:358-385										
III. DOCUMENTS CONSIDERED TO BE RELEVANT * <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%; border-bottom: 1px solid black;">Category *</th> <th style="width: 60%; border-bottom: 1px solid black;">Citation of Document, 11 with indication, where appropriate, of the relevant passages 12</th> <th style="width: 30%; border-bottom: 1px solid black;">Relevant to Claim No. 13</th> </tr> </thead> <tbody> <tr> <td style="text-align: center; vertical-align: top; padding: 5px;">X</td> <td style="padding: 5px;">SE, B, 432 180 (COLGATE-PALMOLIVE COMPANY) 26 March 1984 & US, 3920019 BE, 836182 NL, 7514492 FR, 2293880 DE, 2554504 CH, 599764 GB, 1517706 JP, 51084345 AU, 500994 CA, 1073602 SE, 7512033</td> <td style="text-align: center; vertical-align: top; padding: 5px;">1-2</td> </tr> <tr> <td style="text-align: center; vertical-align: top; padding: 5px;">A</td> <td style="padding: 5px;">US, A, 3 653 381 (WARNKEN) 4 April 1972</td> <td style="text-align: center; vertical-align: top; padding: 5px;">1</td> </tr> </tbody> </table>			Category *	Citation of Document, 11 with indication, where appropriate, of the relevant passages 12	Relevant to Claim No. 13	X	SE, B, 432 180 (COLGATE-PALMOLIVE COMPANY) 26 March 1984 & US, 3920019 BE, 836182 NL, 7514492 FR, 2293880 DE, 2554504 CH, 599764 GB, 1517706 JP, 51084345 AU, 500994 CA, 1073602 SE, 7512033	1-2	A	US, A, 3 653 381 (WARNKEN) 4 April 1972	1
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A	US, A, 3 653 381 (WARNKEN) 4 April 1972	1									
<div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> <p>* Special categories of cited documents: 10</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> </div> <div style="width: 48%;"> <p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</p> <p>"A" document member of the same patent family</p> </div> </div>											
IV. CERTIFICATION <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; border-bottom: 1px solid black; padding: 5px;">Date of the Actual Completion of the International Search</td> <td style="width: 50%; border-bottom: 1px solid black; padding: 5px;">Date of Mailing of this International Search Report</td> </tr> <tr> <td style="border-bottom: 1px solid black; padding: 5px;">1988-05-05</td> <td style="border-bottom: 1px solid black; padding: 5px;">1988 -05- 10</td> </tr> <tr> <td style="border-bottom: 1px solid black; padding: 5px;">International Searching Authority</td> <td style="border-bottom: 1px solid black; padding: 5px;">Signature of Authorized Officer</td> </tr> <tr> <td style="padding: 5px;">Swedish Patent Office</td> <td style="padding: 5px;"> Leif Karnsäter </td> </tr> </table>			Date of the Actual Completion of the International Search	Date of Mailing of this International Search Report	1988-05-05	1988 -05- 10	International Searching Authority	Signature of Authorized Officer	Swedish Patent Office	 Leif Karnsäter	
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